

# JUST BIG ENOUGH: GREEN HOUSING FOR ALL

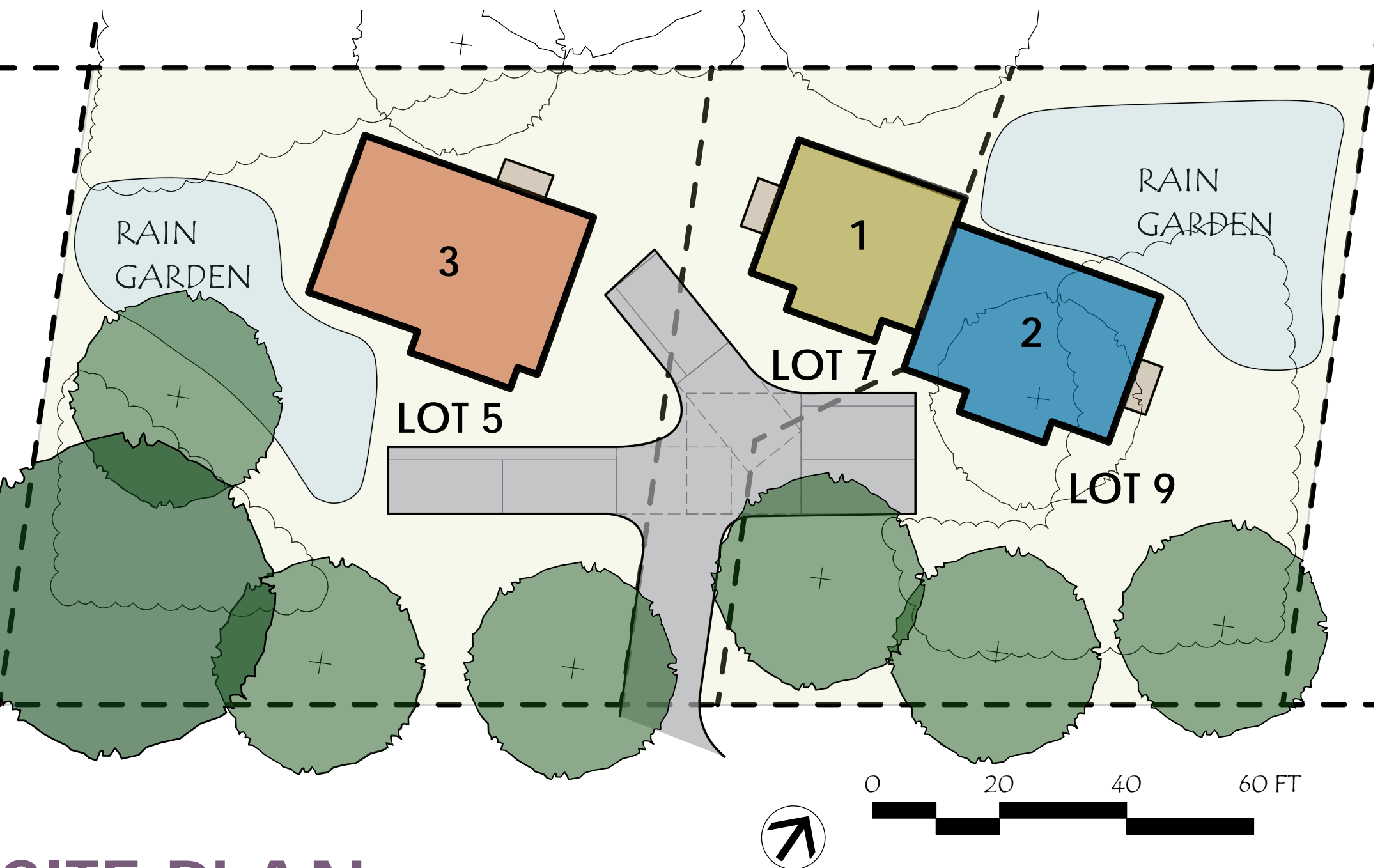
FITCH ARCHITECTURE & COMMUNITY DESIGN  
WRIGHT BUILDERS  
POWERHOUSE ENERGY CONSULTING  
DESIGN TEAM: LAURA FITCH, AVIVA GALASKI, ROGER COONEY,  
MATT TURCOTTE, KARELT DE LA CRUZ



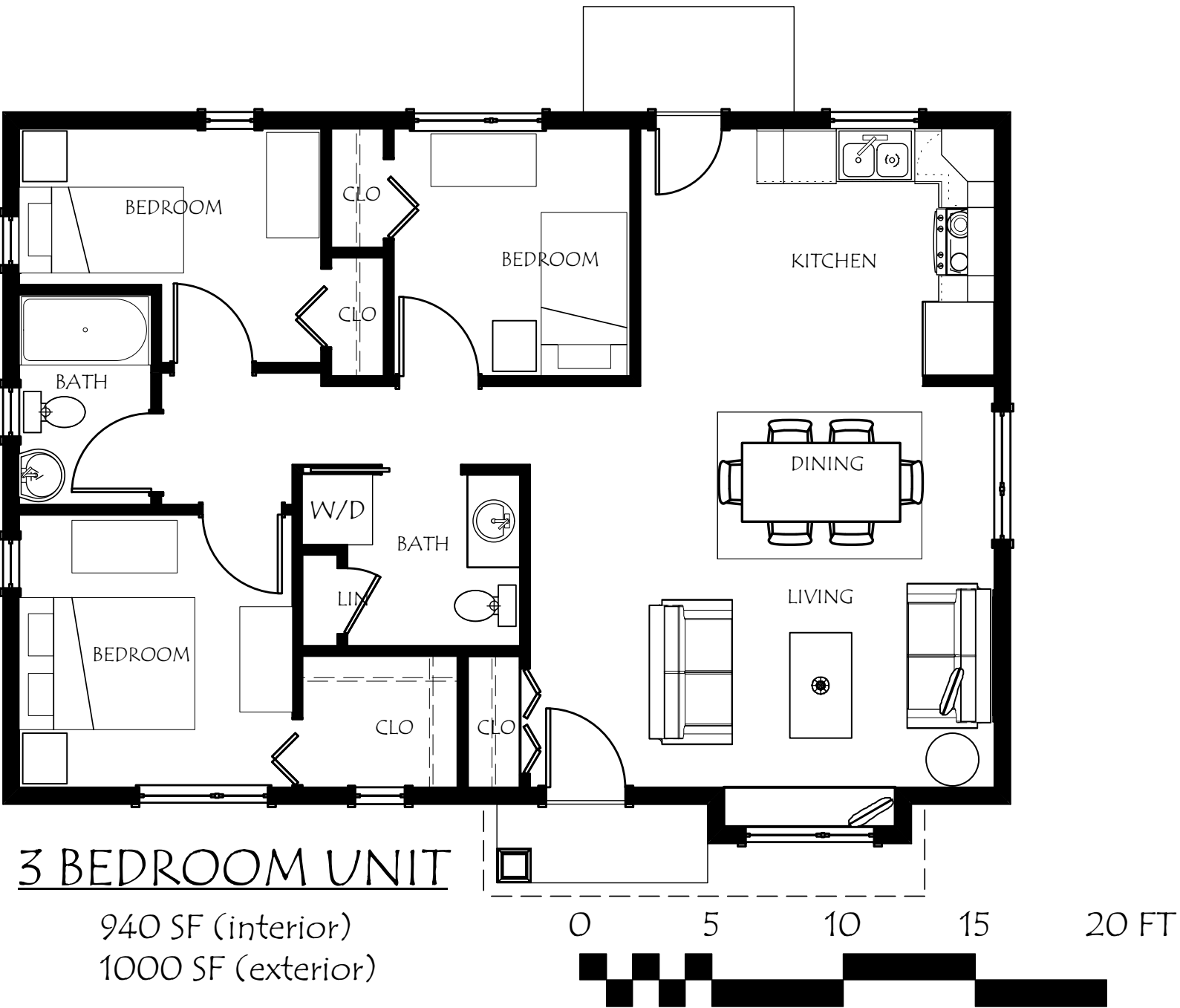
## Affordable, Net Zero Ready, Comfortable, Adaptable

To achieve Net Zero Energy affordably, the building mass need to be simple. We propose a simple massing, enhanced through carefully selected architectural elements:

1. Siding with two orientations and elegant colors creates visual interest/
2. Shed bay windows bring in light from the south without changing the roof pitch or adding expensive valleys.
3. Windows are playful in shape and operation.
4. Asymmetrical roof pitches provide a modern twist on an otherwise traditional form.
5. Scissor roof trusses result in interior spaces feeling larger.

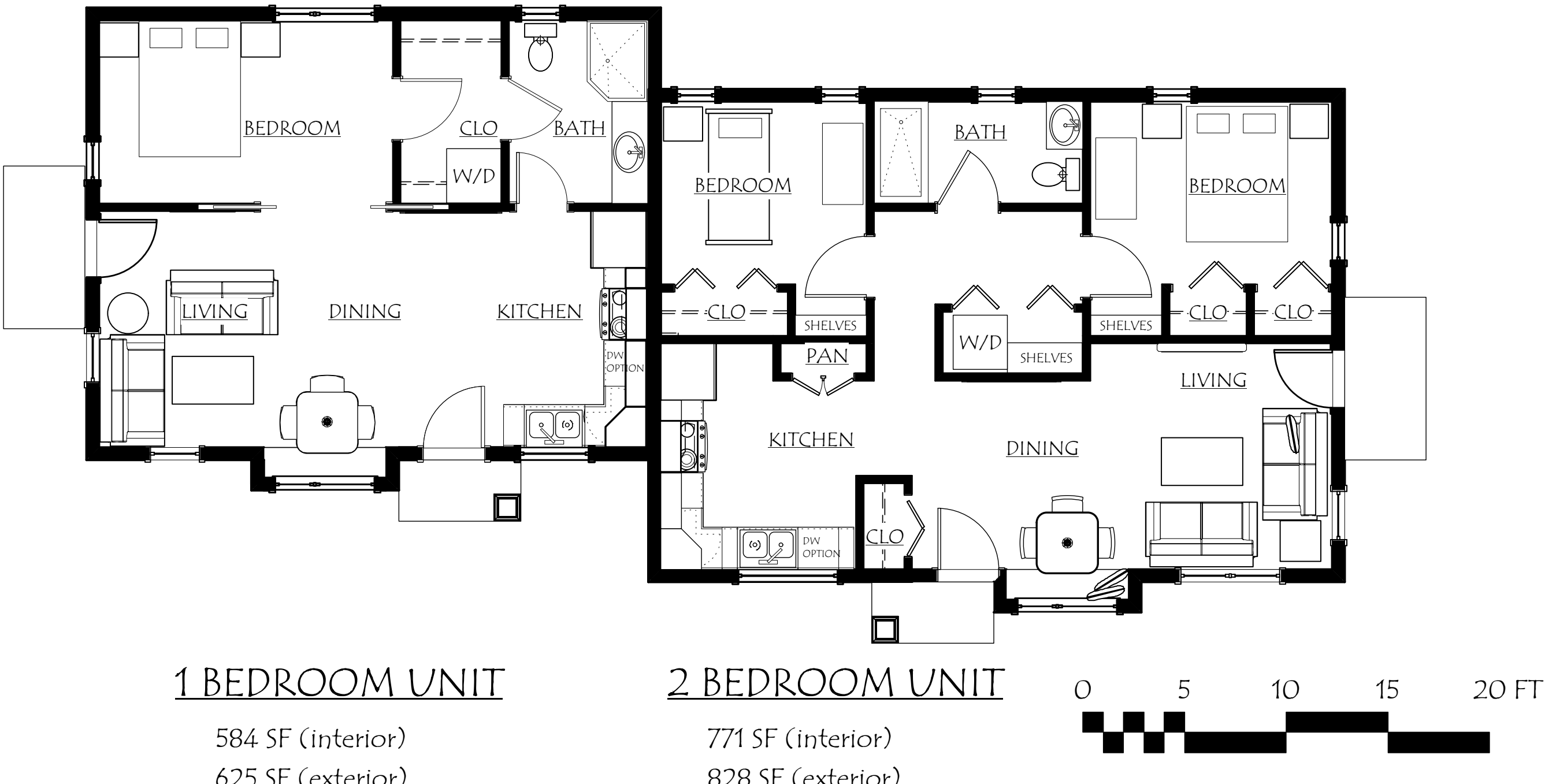


SITE PLAN



## 3 Bedroom Unit A4A – Accessible for All

This home features three bedrooms on one level, using the space otherwise required for a stair to maximize accessibility. This is the perfect home for someone challenged by stairs and wishing to live with family, friends or caretaker.



1 BEDROOM UNIT

584 SF (interior)  
625 SF (exterior)

2 BEDROOM UNIT

771 SF (interior)  
828 SF (exterior)

## 1 Bedroom Unit CV2 - Cross View / Cross Ventilation

When you slide open the doors between the living and bedroom areas, the 1-Bedroom unit seems to expand exponentially! This layout provides views straight through the unit to the woods beyond, and creates an opportunity for cross ventilation. This is the perfect retirement house for single or couple!

## 2 Bedroom Unit Related-or-Not

This unit balances privacy and openness. Two similarly sized, north-facing bedrooms are separated from each other and the main living space by a short hallway that also includes the bathroom and laundry. The kitchen is partially screened from the living space by the entry, allowing for acoustic separation while retaining a modern open floor plan. This flexibility creates a two bedroom that would work well for two unrelated adults, a small family, or downsizing baby boomers.





# FITCH ARCHITECTURE & COMMUNITY DESIGN WRIGHT BUILDERS POWERHOUSE ENERGY CONSULTING

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## PERFORMANCE



### Zero Net Energy Requirements

The project will be constructed to the US DOE's Zero Energy Ready Home requirements. In order to achieve the Zero Net Energy requirement photovoltaics' will have to be used. This can be achieved via onsite or offsite arrays. Additional high efficiency items to enable Zero Net Energy are: Energy Star Certified appliances, Ductless Air Source Heat Pumps for heating and cooling, ducted Energy Recovery Ventilator, Hybrid electric heat pump / 50-gallon hot water tank and LED lighting. Also included will be low water usage plumbing fixtures that meet the EPA's WaterSense standard and hot water plumbing pipe distances equal to or less than thirty feet.

### Energy Star and Code Requirements

All systems and materials will meet the City of Northampton's Stretch Code, ICE 2015, Massachusetts State Building Code(s), Energy Star Performance standard (including IndoorAirplus), DOE's Zero Energy Ready Home requirements and Massachusetts health code requirements.

### Accessibility Requirements

The floor elevation relative to grade will be minimal to allow for a ramping walk to the front door. The front and all interior doors will have zero thresholds. Doors will be wide enough to accommodate a wheel chair or walker. Walls will have solid blocking for future grab bars. The toilet will be elongated and comfort height.

### Energy Performance Requirements

- The building(s) energy usage performance requirements will be achieved via the following:
- o R20 at the concrete slab, R40 exterior walls (with a thermal break) and R60 attic.
  - o Window U-Value of 0.160 and Solar Heat Gain Coefficient of 0.260.
  - o Infiltration Rate of a maximum of 0.50 Air Change per Hour at Pascal 50.
  - o Air-source heat pump: Electric, Heating: 12.0 HSPF. Cooling: 22.0 SEER, w/DSH.
  - o Programmable Thermostat.
  - o Water Heating: Heat pump, Electric, 3.25 EF, 50.0 Gal.
  - o Ventilation System Balanced: ERV, 40 cfm, 50.0 watts.
  - o Energy Star certified electric range, microhood, washer and dryer. Energy Star Certified LED lighting.

## AFFORDABILITY

**Based on 80% of AMI of \$47,419**

The following specifications (in additions to those listed above) were used to achieve high performance, affordably:

- o 584 SF 1 Bedroom Unit - zero lot line duplex
- o 771 SF 2 Bedroom Unit - zero lot line duplex
- o 940 SF 3 Bedroom Single Family Unit
- o One story building with concrete slab on grade
- o Concrete landings
- o Scissor trusses for roof
- o Insulated fiberglass exterior doors
- o Vinyl windows with integral exterior trim
- o Vinyl siding and metal wrapped trims
- o 30 year fiberglass/asphalt architectural shingles
- o Drywall returns at the windows with wood sills
- o ½" drywall
- o Prefinished engineered wood floor
- o Tile floor at bath rooms
- o Solid core paint grade interior doors
- o Prime and one finish coat for interior painting, non VOC paint
- o Contractor grade kitchen cabinets with plastic laminate counter tops
- o Vanities with composite tops and integral bowls
- o All white appliances
- o Mid-price point plumbing fixtures
- o Tub/Shower
- o Elongated and comfort height toilet
- o 225 AMP above ground electric service
- o Public water & sewer
- o PV array by a third party provider
- o Trap rock driveway and walks

